

# **Historic, Archive Document**

Do not assume content reflects current  
scientific knowledge, policies, or practices.





*"Welcome Shelter Near Trail's End"*

FEDERAL-STATE COOPERATIVE  
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

ARIZONA

JANUARY 15, 1947

By

Division of Irrigation, Soil Conservation Service  
United States Department of Agriculture

---

Data included in this report were obtained by the agency named above in cooperation with the Federal, State, and local organizations listed on the last page of this report.



FEDERAL-STATE COOPERATIVE  
SNOW SURVEYS AND IRRIGATION WATER FORECASTS  
FOR  
ARIZONA

Report Prepared

by

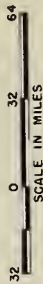
Clyde E. Houston—Hydraulic Engineer

DIVISION OF IRRIGATION  
SOIL CONSERVATION SERVICE  
AGRICULTURAL EXPERIMENT STATION  
RENO, NEVADA



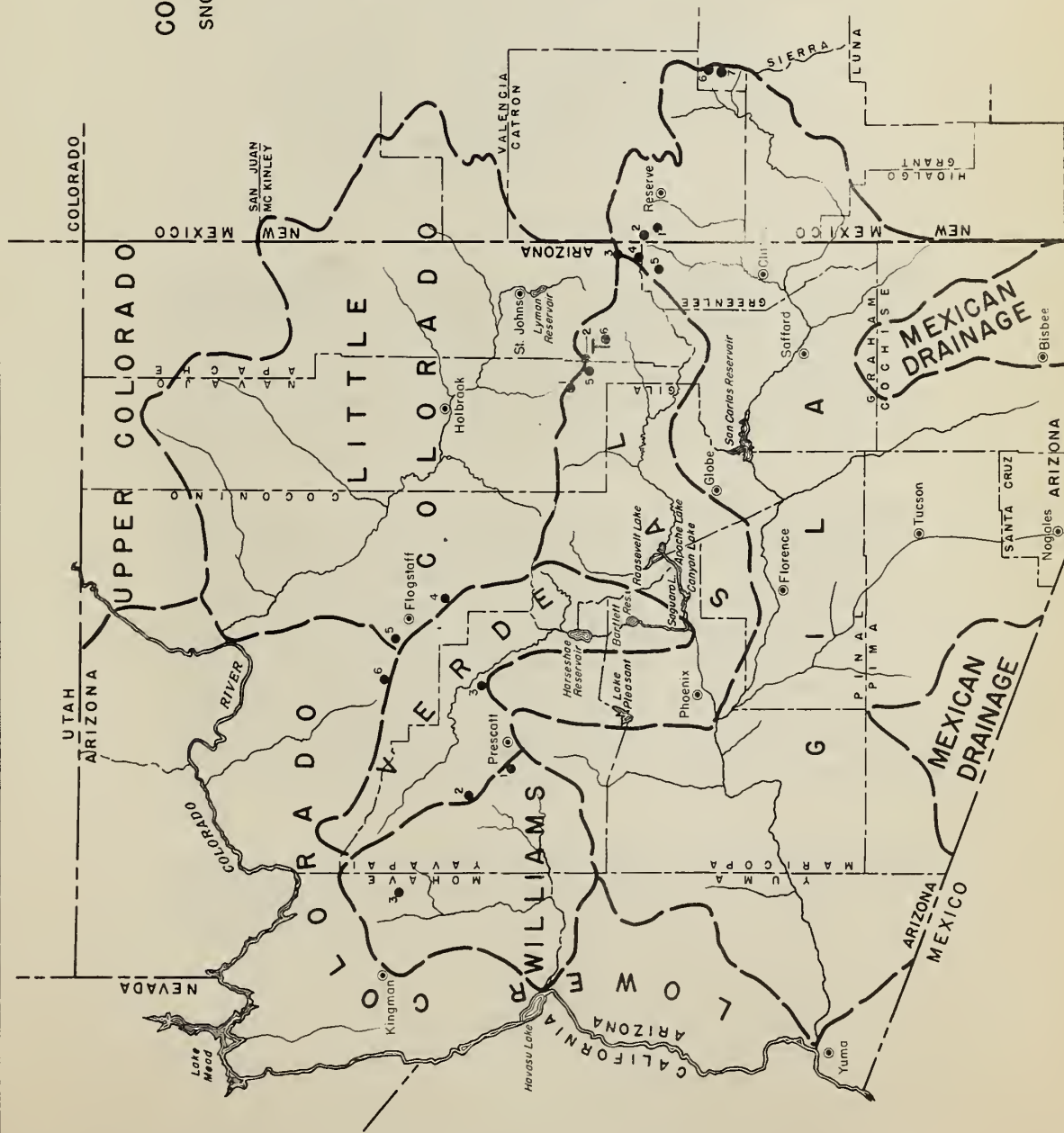
# ARIZONA COOPERATIVE SNOW SURVEYS SNOW COURSES AND DRAINAGE BASINS

October 9, 1946

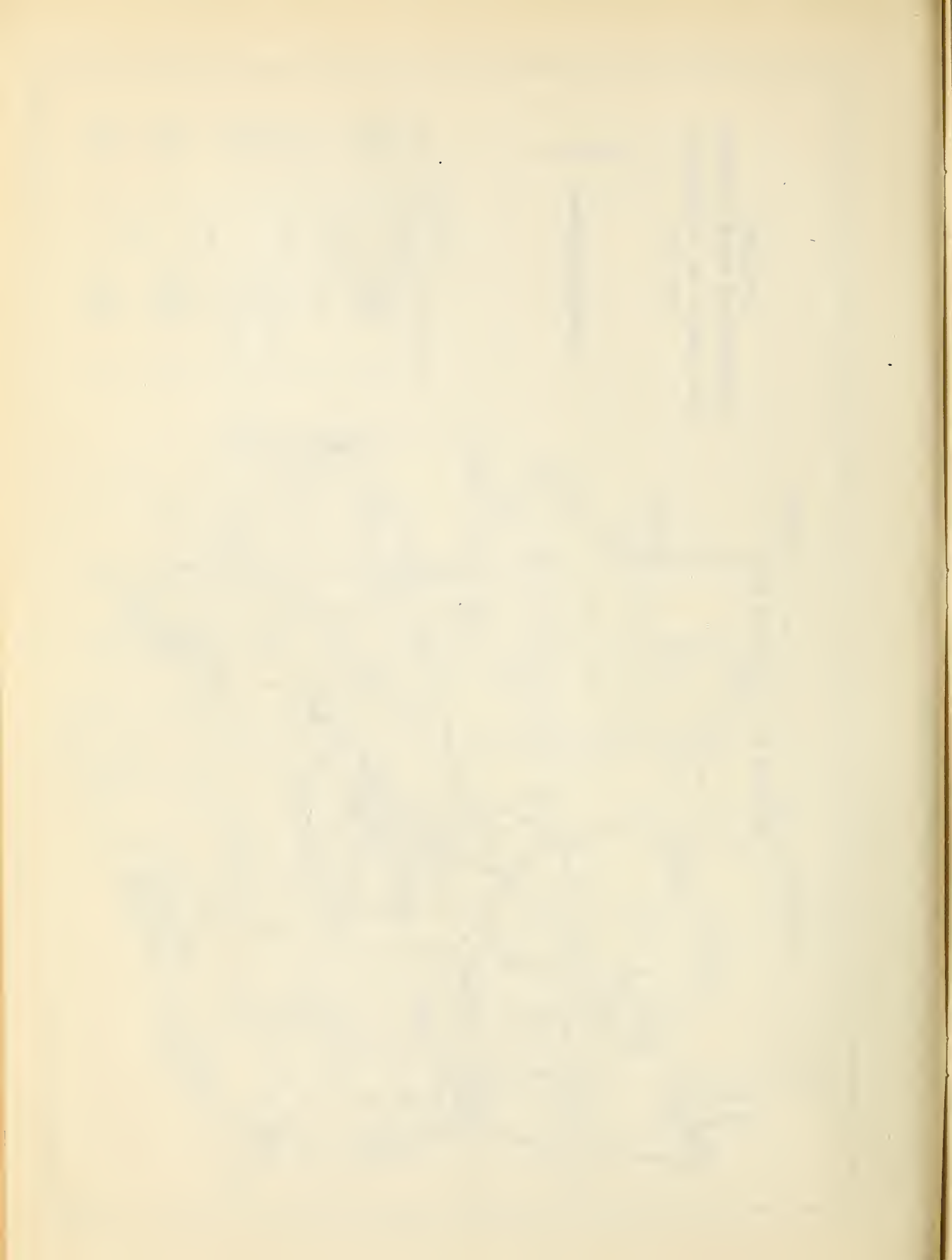


## INDEX TO SNOW COURSES

NUMBER	NAME	ELEVATION
<b>LITTLE COLORADO RIVER</b>		
1.	Forest Dale	6,000
2.	Lehery	7,200
3.	Hutcheon	5,500
4.	Port Valley	7,550
5.	Port Valley	7,550
<b>WILLIAMS RIVER</b>		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Ranch	5,000
<b>GILA RIVER</b>		
1.	Prisco Divide	8,000
2.	State Line	8,000
3.	Coronado Trail	8,000
4.	Coronado Trail	8,000
5.	Basin Road	8,000
6.	Taylor Creek	7,950
7.	Inman	7,600
<b>VERDE RIVER</b>		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Ranch	5,000
4.	Willow Ranch	5,000
5.	Port Valley	7,550
6.	Chalender	7,450
7.	Chalender	7,450
<b>SALT RIVER</b>		
1.	Forest Dale	6,000
2.	Lehery	7,200
3.	Hutcheon	5,500
4.	Coronado Trail	8,000
5.	Willow Ranch	7,000
6.	Lehery	6,250









## WATER SUPPLY OUTLOOK

### Arizona

January 15, 1947

\* \* \* \* \*

\* January 15, 1947 snow surveys indi- \*  
\* cate that the water content of snow \*  
\* at the higher elevations of Little \*  
\* Colorado and Salt Rivers is slightly \*  
\* above average, while the Gila, Verde \*  
\* and Williams is low. In practically \*  
\* all Major watersheds cumulative run- \*  
\* off since October 1946 is above normal, \*  
\* but it is insufficient to recharge \*  
\* reservoirs from the extreme lows of \*  
\* last year. Above normal precipitation \*  
\* during the coming weeks on the water- \*  
\* sheds is needed to bring storage levels \*  
\* to required amounts. \*  
\* \*  
\* \* \* \* \*

Precipitation Since October 1, precipitation through-  
out Arizona has been about average. The upper Little  
Colorado and Gila Watersheds received less than average  
precipitation while the Upper Salt, Verde, and Will-  
iams Watersheds were above average. Soil moisture in  
the above areas is below normal and in most areas the  
ground under the snow is not frozen.

Snow Cover As of January 15, 1947 snow cover through-  
out the mountainous parts of the state ranges from  
slightly above normal to below normal. On Little  
Colorado this years snow cover is about 20 percent  
higher than average while Williams River Watershed is  
below average. Gila River is about 65 percent of  
last year and about 60 percent of average and Verde  
River snow cover is lower than any of the last three  
or four years. Snow cover on Salt River Watershed is  
about 120 percent of last year but still is only aver-  
age.

Runoff Stream discharge over the state was generally  
above average for the period October 1 through  
December 31.



The greatest deviation is for Little Colorado River at Grand Falls where the cumulative runoff is over 400 percent of median. The cumulative for Salt River near Roosevelt and Verde River near Horseshoe Dam is about 150 and 130 percent respectively of the median. Williams River is above average while Gila River near Solomonsville is only about 95% of the cumulative median. Dry unfrozen soil under the snow on the upper reaches of the watershed indicates that the water first released from snow will probably increase the soil moisture and contribute very little towards the runoff. Indications are that the above average runoff on some of the watersheds is slowly receding towards normal or below.

Reservoir Storage In practically all of the Arizona reservoirs water storage is below the January 1946 level in addition to being below average. As of this date Lake Mead is 91 percent of 1946 and 83 percent of average. The main Salt and Gila River reservoirs are low with the Salt storing 65 percent of 1946 and the same percent of average. San Carlos is extremely low for this date, storing only 72 percent of 1946 and 6 percent of the average. Lake Pleasant is the same as last year but only 17 percent of average while Bartlett Reservoir is about 65 percent of average and the new Horseshoe Reservoir is still filling. Lyman Reservoir on Little Colorado was affected by the late November storms in that area and is now about 200 percent of average and about 50 percent of usable storage.

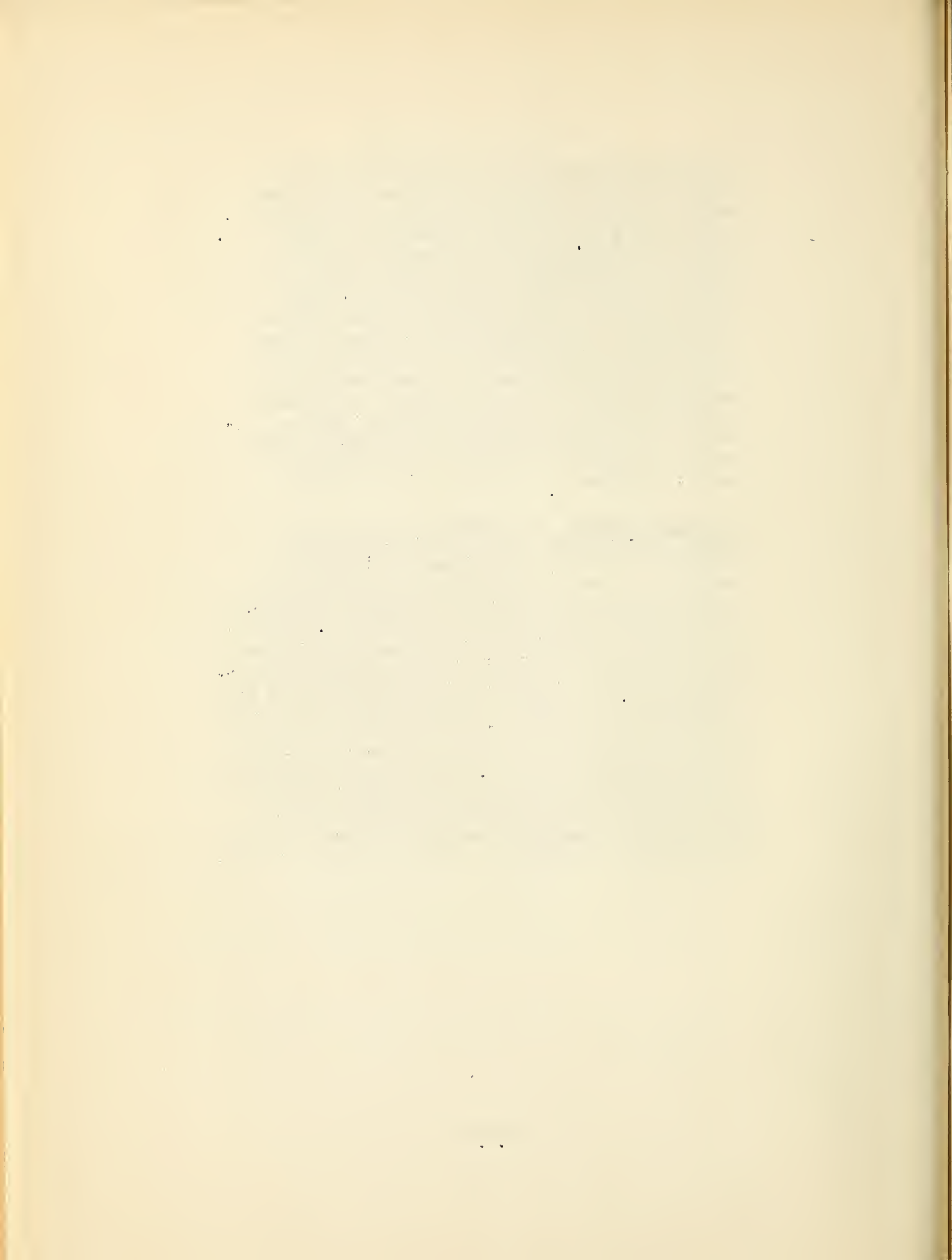


TABLE I

ARIZONA SNOW SURVEYS JANUARY 15, 1947

LOCATION		SNOW COVER MEASUREMENTS										
		Water Content (Inches)			Snow Depth (Inches)		Water Content (Inches)			Past Record		
DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	1947	1946	1945	Years of Record	Av. Water Content (Inches)
								Same Approx. date				
LITTLE COLORADO RIVER												
Forest Dale	1	2	9N	21E	6000	1/16	6.1	1.5	1.5	0.5	8	1.0
McNary	2	14	8N	23E	7200	1/16	12.2	2.5	1.6	2.2	8	2.4
Nutriosio	3	23	6N	30E	8500	1/15	6.0	1.6	1.8	1.6	8	1.8
Mormon Lake	4	13	18N	8E	7350	1/15	14.2	2.7	New Snow Course			
Fort Valley	5	22	22N	6E	7350	1/15	7.1	1.6	"	"		
WILLIAMS RIVER												
Iron Springs	1	22	14N	3W	6200	1/14	0	0	1.3	New Snow Course	2	0.7
Camp Wood	2	3	16N	6W	5700	1/15	0	0	0.2	"	2	0.1
Willow Ranch	3	16	21N	11W	5000	1/15	T	T	0	"	2	0
GILA RIVER												
Frisco Divide	1	31	6S	20W	8000	1/15	4.0	0.6	1.3	2.6	8	1.8
State Line	2	6	6S	21W	8000	1/15	7.1	1.4	1.6	3.0	8	2.4
Nutriosio	3	23	6N	30E	8500	1/15	6.0	1.6	1.8	1.6	8	1.8
Coronado Trail	4	26	5N	30E	8000	1/15	7.1	1.8	1.7	2.3	8	2.8
Beaver Head	5	13	4N	30E	8000	1/15	5.8	1.1	3.4	2.6	8	2.8
Taylor Creek	6	20	10S	10W	8500	1/15	2.6	0.9	No Report		4	1.0
Inman	7	6	11S	10W	8500	1/15	2.7	0.9	New Snow Course			

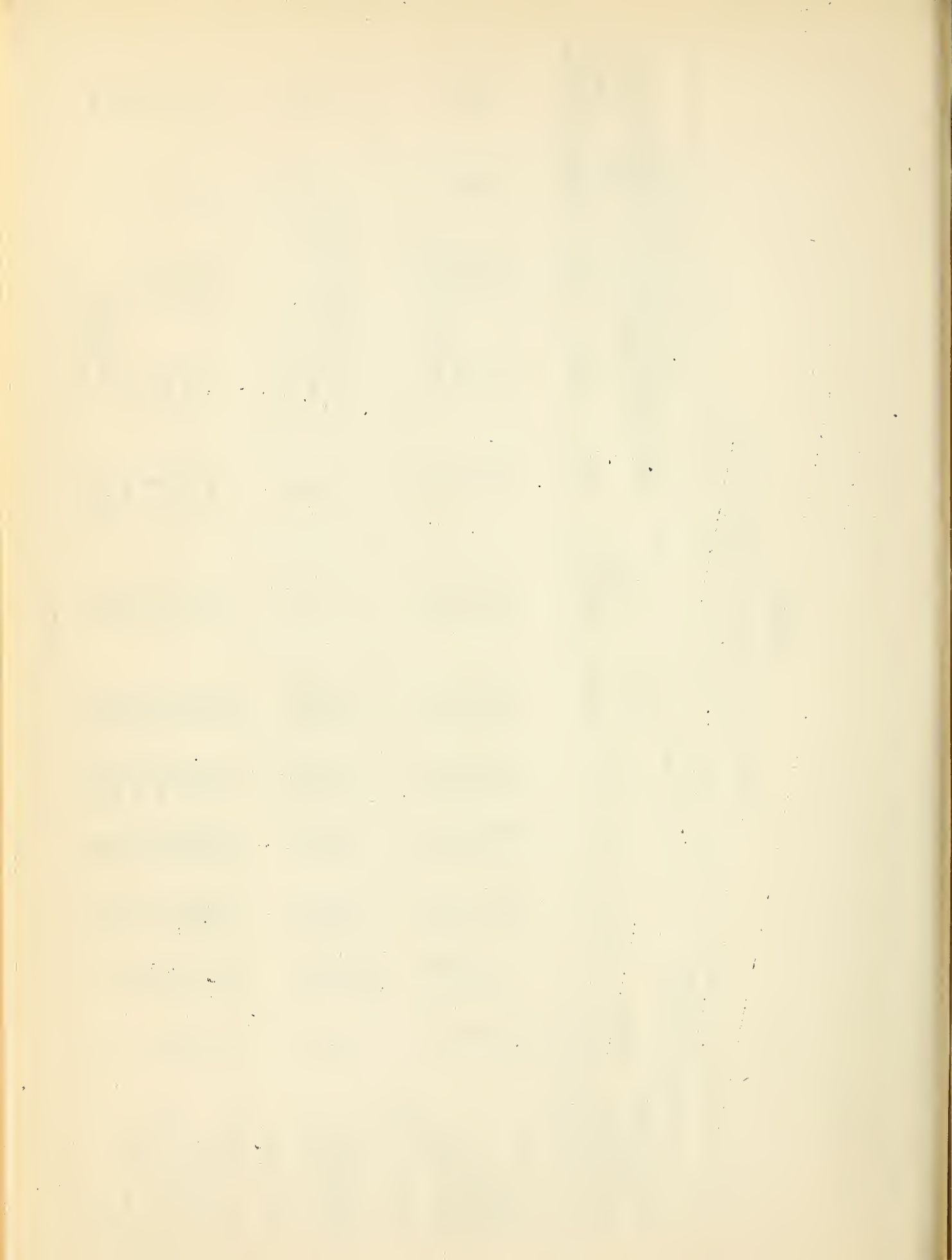


TABLE I

ARIZONA SNOW SURVEYS JANUARY 15, 1947

LOCATION		SNOW COVER MEASUREMENTS										
		Water Content (Inches)			Same Approx. date		Past Record					
DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	1947	1946	1945	Years of Record	iv. Water Content (Inches)
VERDE RIVER												
Iron Springs	1	22	14N	3W	6200	1/14	0	0	1.3	New Snow Course	2	0.7
Camp Wood	2	3	16N	6W	5700	1/15	0	0	0.2	" "	2	0.1
Mingus Mountain	3	3	15N	2E	7100	1/15	1.9	0.1	New Snow Course			
Morrison Lake	4	13	18N	8E	7350	1/15	14.2	2.7	" "	" "		
Fort Valley	5	22	22N	6E	7350	1/15	7.0	1.6	" "	" "		
Chalender	4	27	22N	3E	7100	1/15	7.9	1.3	" "	" "		
SALT RIVER												
Forest Dale	1	2	9N	21E	6000	1/16	6.1	1.5	1.5	0.5	8	1.0
McNary	2	14	8N	23E	7200	1/16	12.2	2.5	1.6	2.2	8	2.4
Nutriosio	3	23	6N	30E	8500	1/15	6.0	1.6	1.8	1.6	8	1.8
Coronado Trail	4	26	5N	30E	8000	1/15	7.1	1.8	1.7	2.3	8	2.8
Milk Ranch	5	28	8N	23E	7000	1/16	8.6	1.9	1.4	0.3	7	1.4



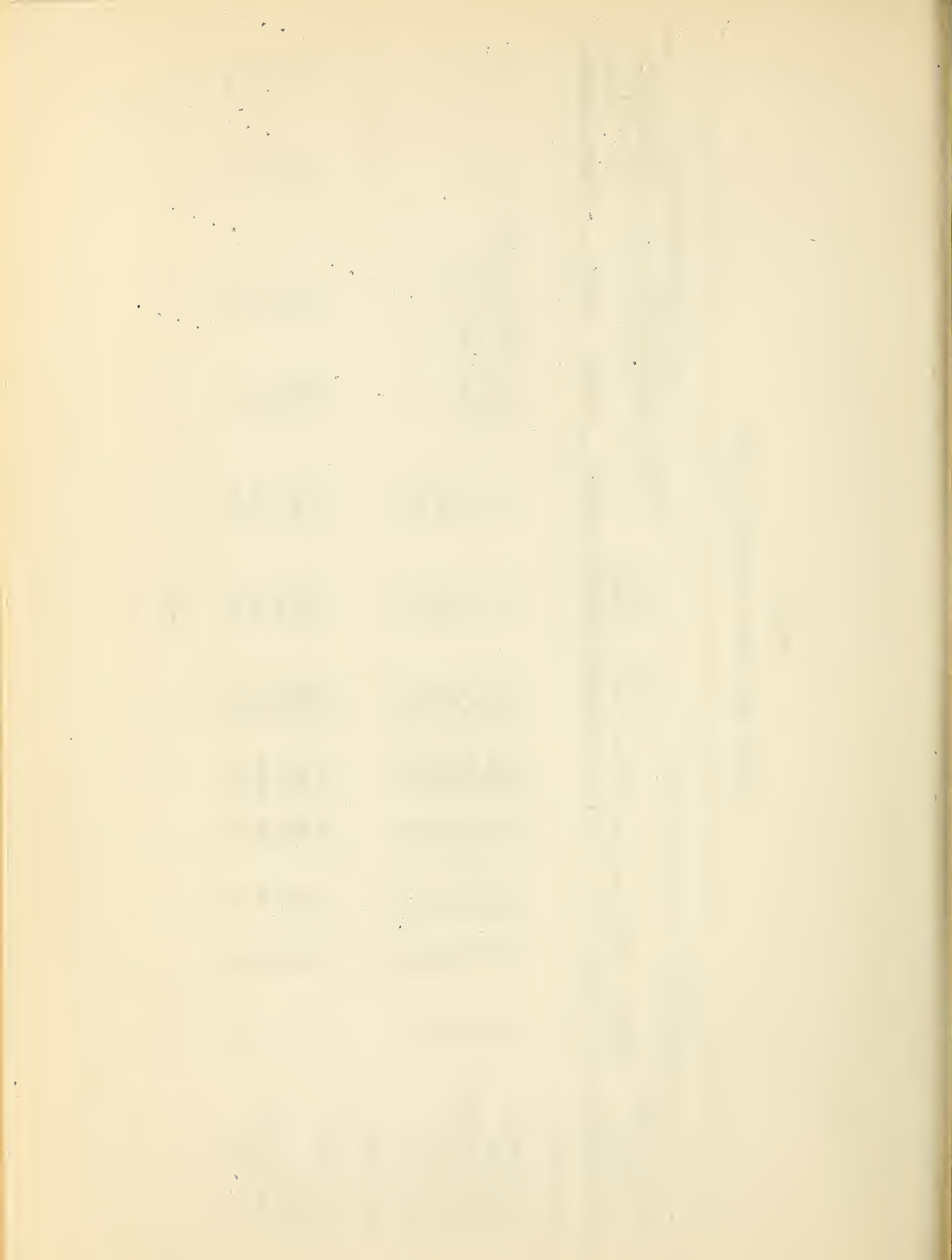


TABLE 2

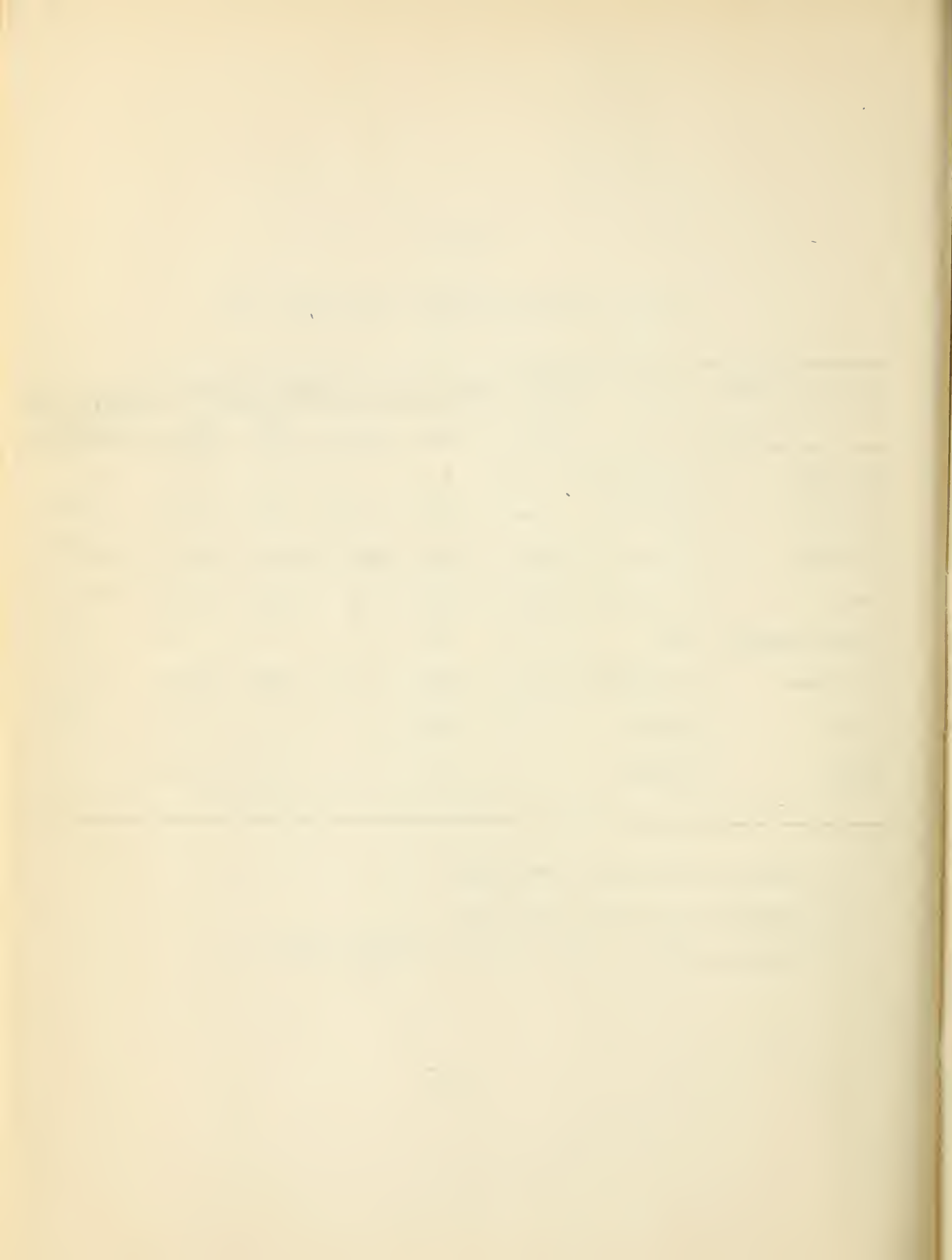
## STATUS OF RESERVOIR STORAGE, January 15, 1947

BASIN And STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE				About Jan. 15
			1947	1946	1945	1944	10-Yr. Avg. 1936-1945
Agua Fria	Lake Pleasant	179	3	3	2	3	18
Colorado	Lake Havasu	688	602	572	577	582	496 <sup>a</sup>
Colorado	Lake Mead	27,935	17,603	19,417	19,908	21,230	21,176 <sup>a</sup>
Gila	San Carlos	1,200	13	18	92	282	212
Little Colorado	Lyman	29	13	3	2	3	7 <sup>b</sup>
Salt River	Salt River <sup>c</sup>	1,771	474	721	852	1,035	718
Verde	Bartlett	179	38	7	8	18	58 <sup>b</sup>
Verde	Horseshoe	67	10	10	New Reservoir		

a - Average for years 1939 through 1945

b - Average for years 1941 through 1945

c - Includes Roosevelt, Apache, Saguaro and Canyon Lakes



LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Forest Dale . . . . .	Kindred & Schroeder
McNary . . . . .	Kindred & Schroeder
Nutrioso . . . . .	R. L. Diggs
Mormon Lake . . . . .	M. F. Greaves
Fort Valley . . . . .	E. C. Martin
Iron Springs . . . . .	Ernest Saxby
Camp Wood . . . . .	Mrs. C. C. Merritt
Willow Ranch . . . . .	Tiny Miller
Frisco Divide . . . . .	Dean M. Earl
Coronado Trail . . . . .	R. L. Diggs
Beaver Head . . . . .	Jes Burke
Taylor Creek . . . . .	F. M. Inman
Inman . . . . .	F. M. Inman
Mingus Mountain . . . . .	Harold Linn
Chalender . . . . .	V. J. Schroeder
Milk Ranch . . . . .	Kindred & Schroeder
State Line . . . . .	Dean M. Earl



The following organizations cooperate in the Arizona snow survey work:

STATE

Nevada Agricultural Experiment Station  
Reno, Nevada

FEDERAL

Department of Agriculture  
Forest Service  
Apache Forest  
Coconino Forest  
Gila Forest  
Kaibab Forest  
Southwestern Forest and Range Expt.  
Station, Fort Valley, Arizona  
Soil Conservation Service  
Division of Irrigation

Department of Commerce  
Weather Bureau  
Arizona Section

Department of Interior  
Bureau of Reclamation  
Region III  
Geological Survey  
Arizona District  
Indian Service  
Fort Apache Reservation

Gila Water Commissioner  
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association  
Phoenix, Arizona

San Carlos Irrigation and Drainage District  
Coolidge, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

